FIG. 1

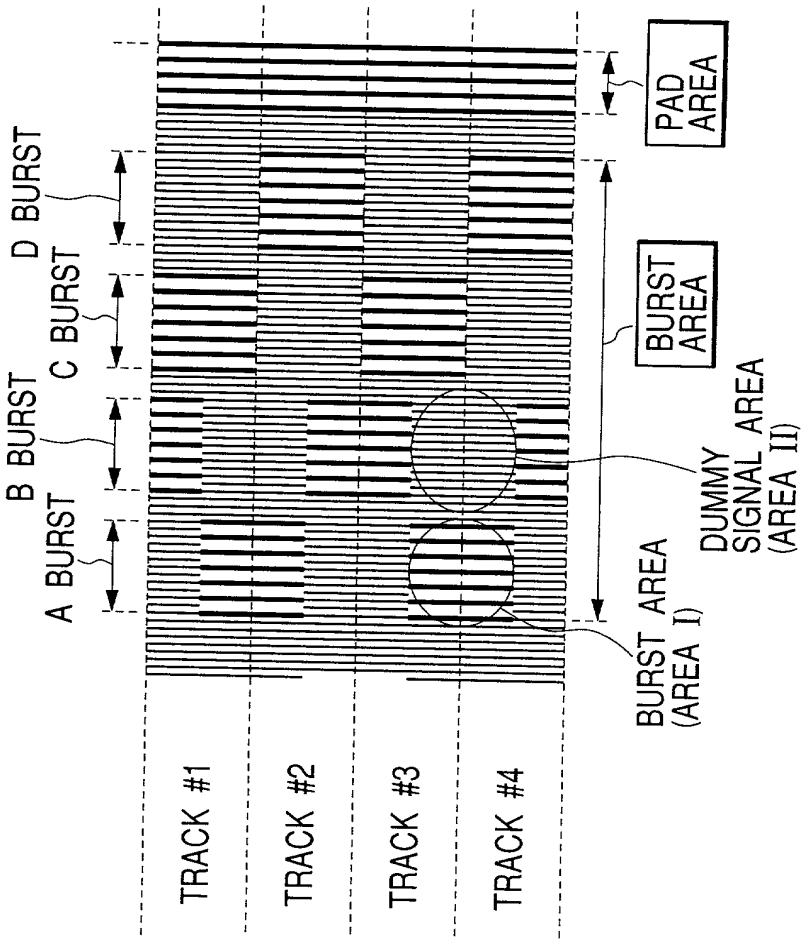

A BURST
B BURST
C BURST
D BURST
TRACK #1
TRACK #2
TRACK #3
TRACK #4
BURST AREA (AREA I)
DUMMY SIGNAL AREA (AREA II)
BURST AREA
PAD AREA

FIG. 2

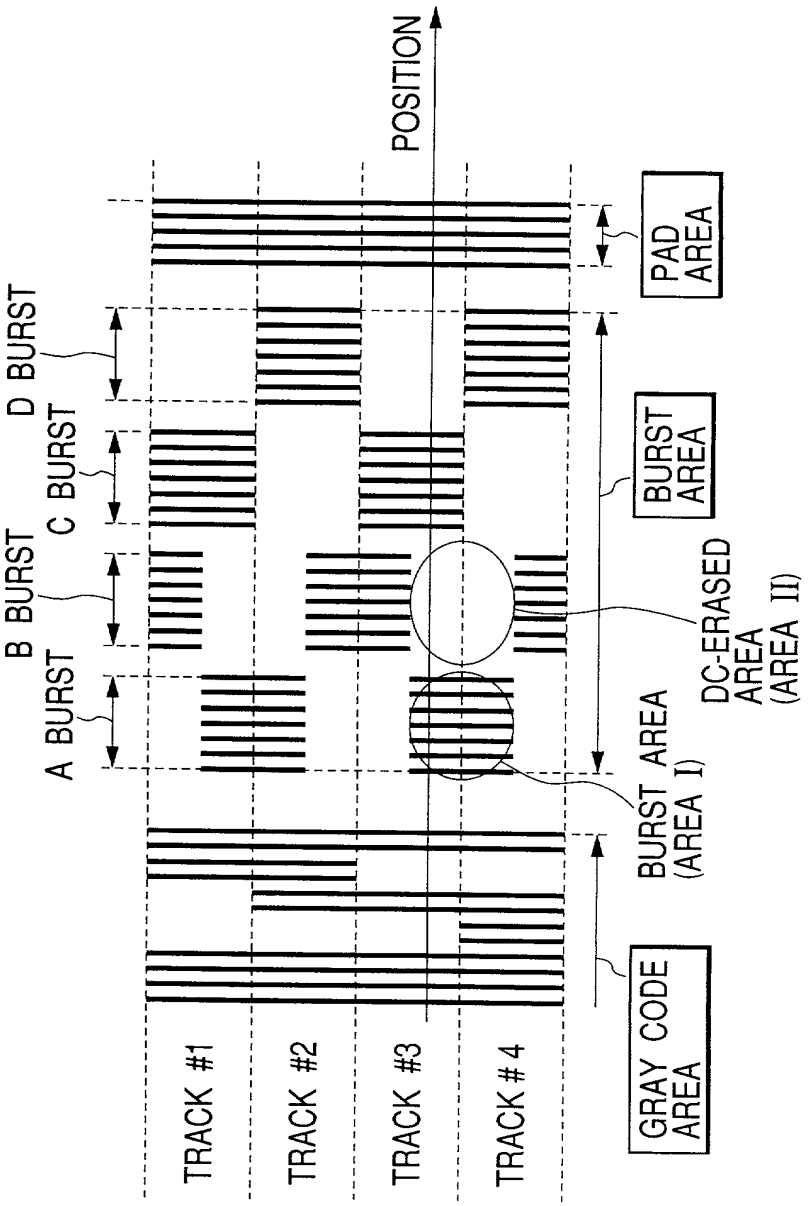

POSITION
A BURST
B BURST
C BURST
D BURST
TRACK #1
TRACK #2
TRACK #3
TRACK # 4
GRAY CODE AREA
BURST AREA (AREA I)
DC-ERASED AREA (AREA II)
BURST AREA
PAD AREA

FIG. 3(a)

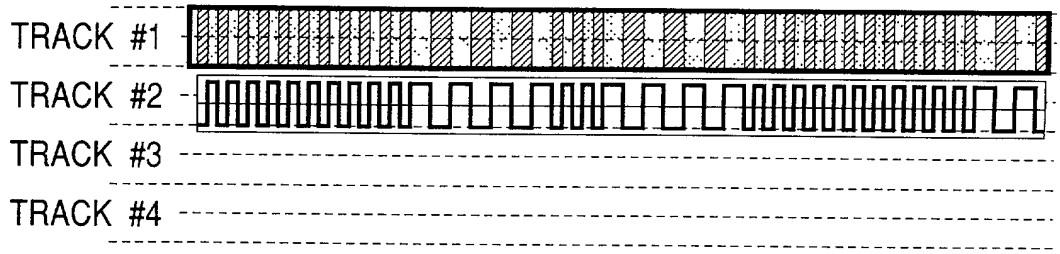


FIG. 3(b)

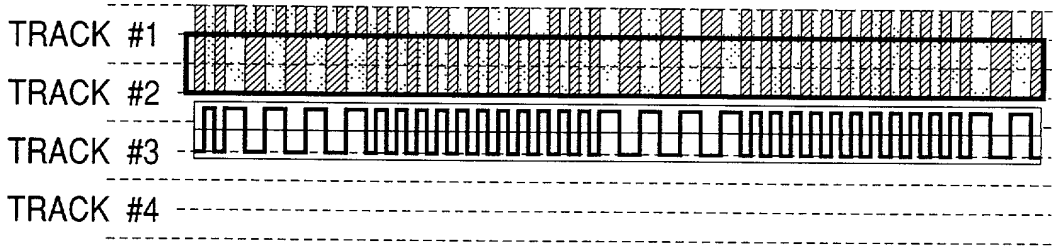


FIG. 3(c)

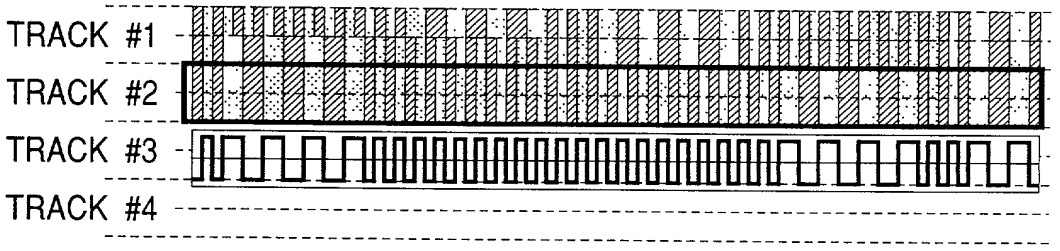


FIG. 3(d)

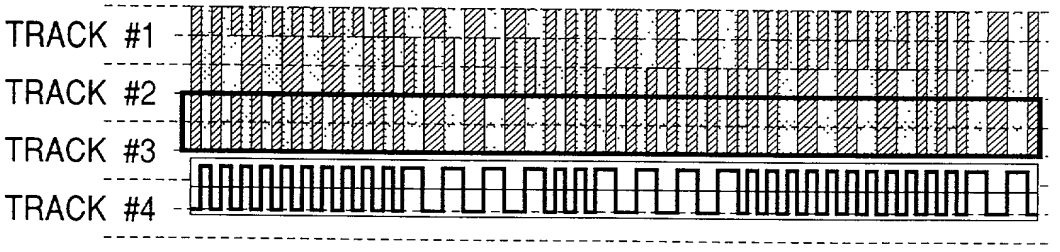


FIG. 3(e)

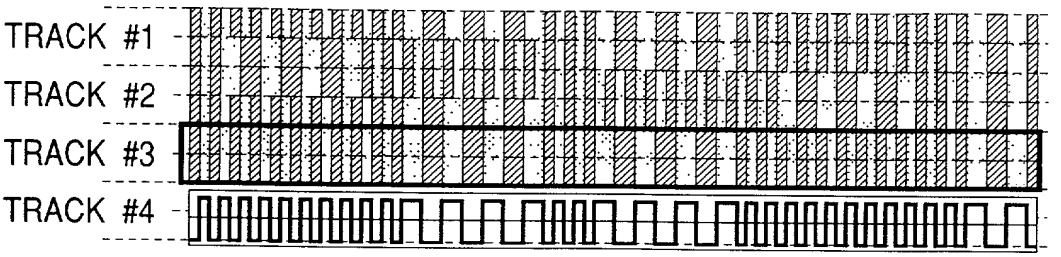


FIG. 4(f)

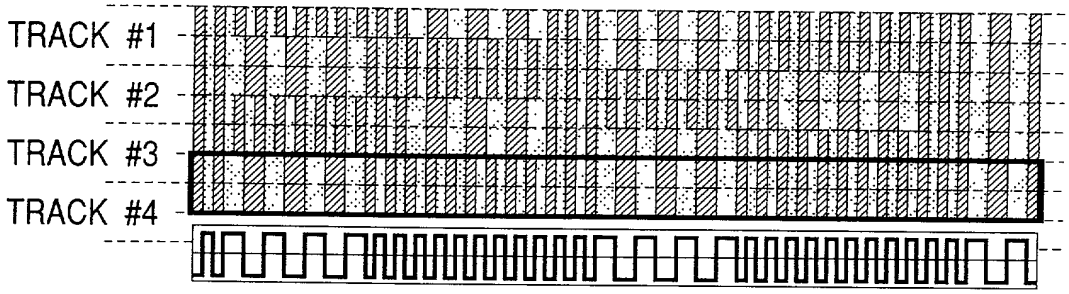


FIG. 4(g)

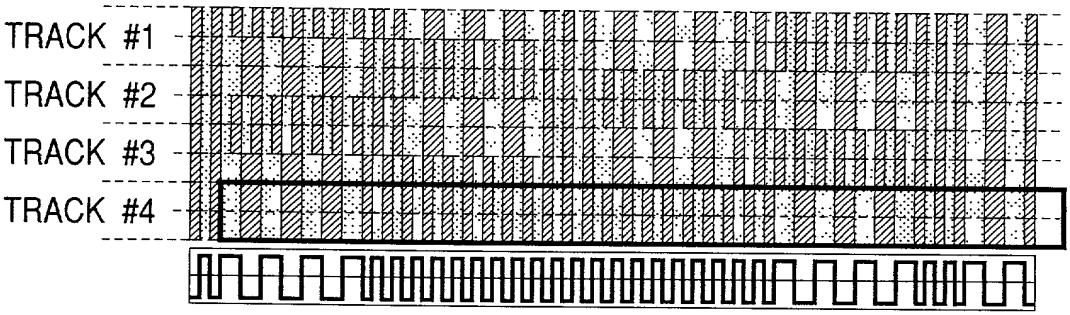


FIG. 4(h)

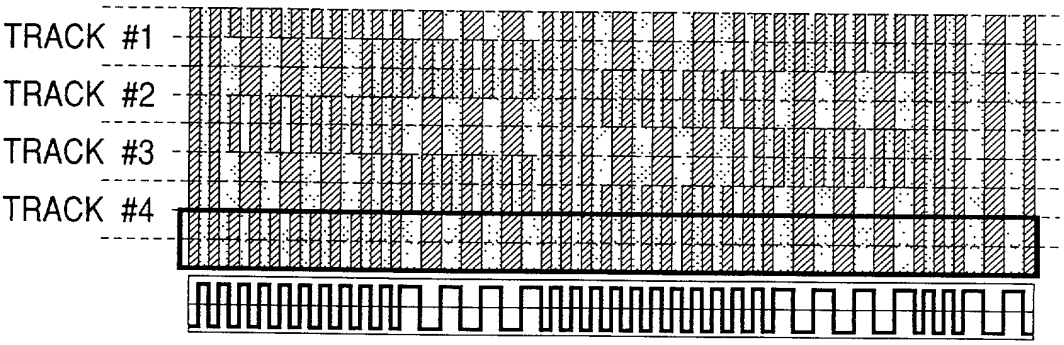


FIG. 4(i)

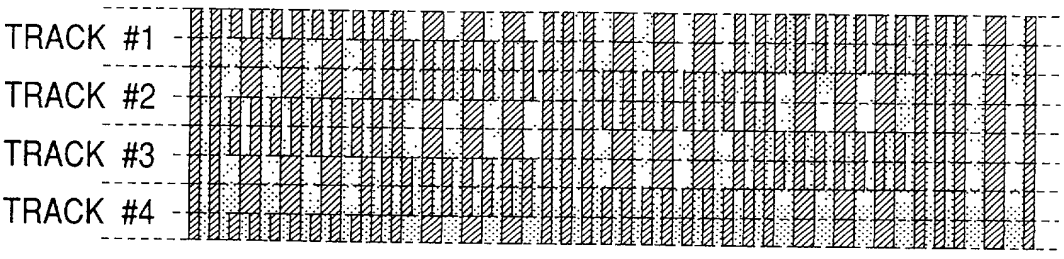


FIG. 5

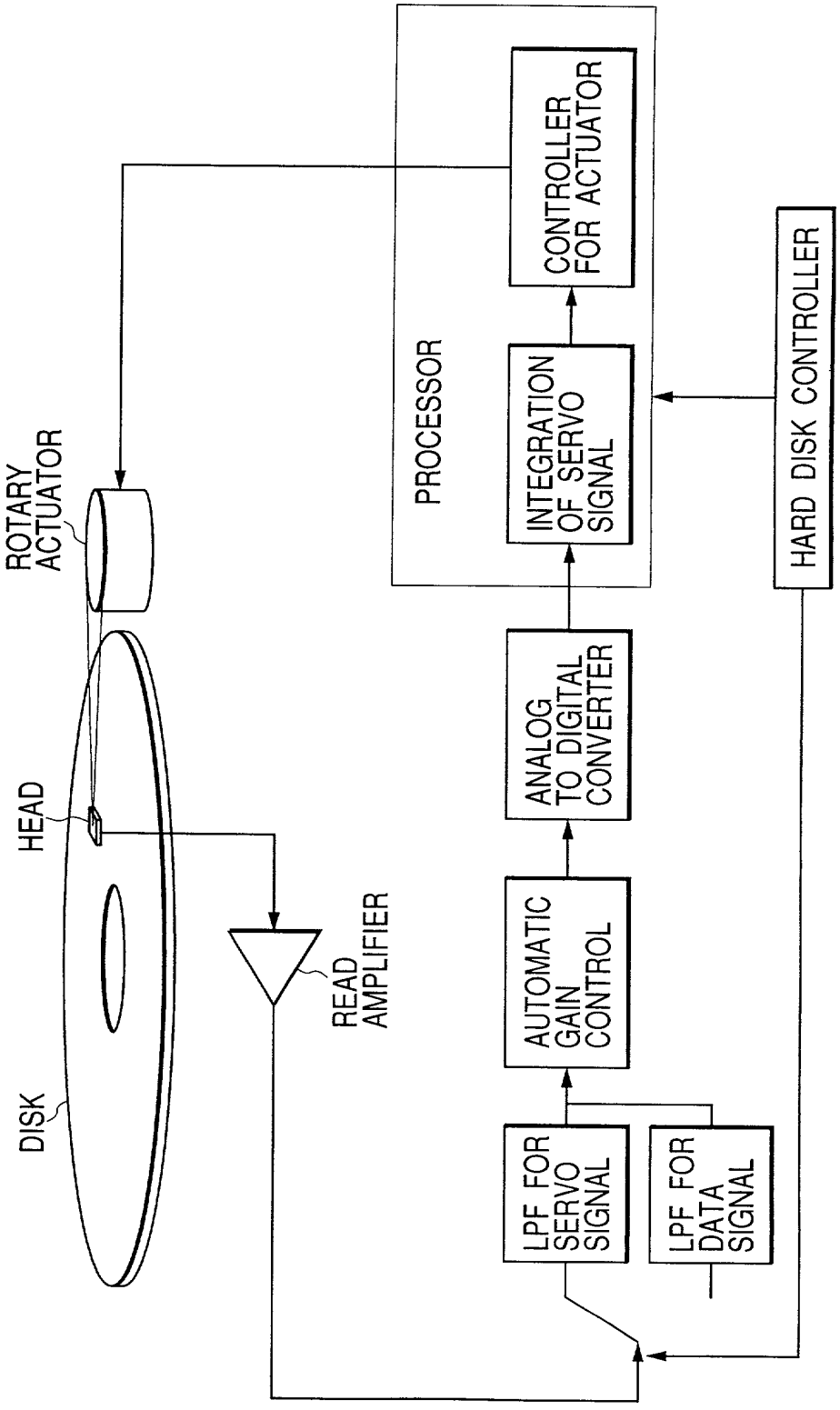

ROTARY ACTUATOR
HEAD
DISK
READ AMPLIFIER
PROCESSOR
CONTROLLER FOR ACTUATOR
INTEGRATION OF SERVO SIGNAL
ANALOG TO DIGITAL CONVERTER
AUTOMATIC GAIN CONTROL
LPF FOR SERVO SIGNAL
LPF FOR DATA SIGNAL
HARD DISK CONTROLLER

FIG. 6

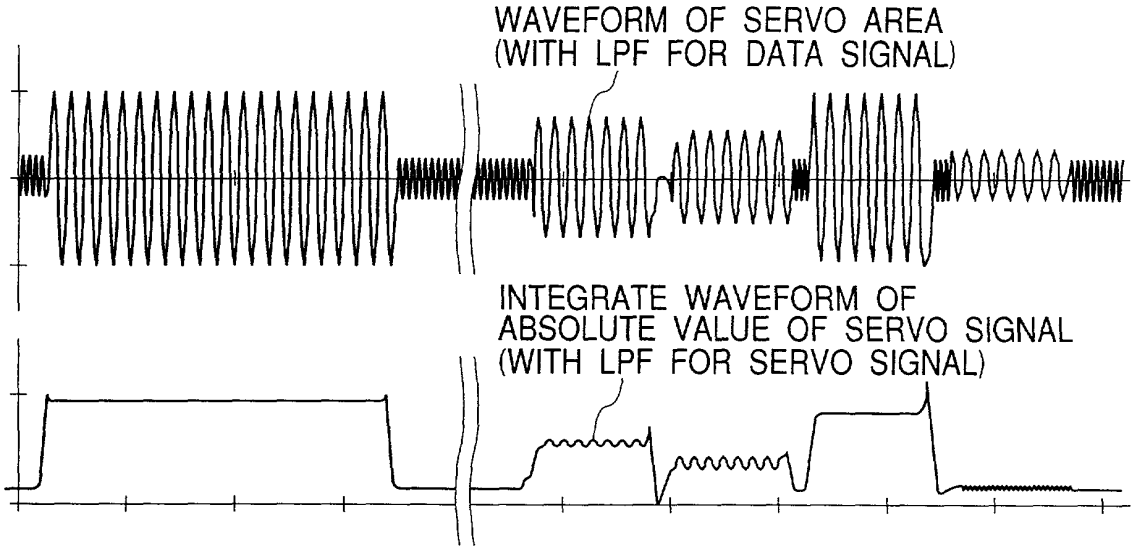

WAVEFORM OF SERVO AREA
(WITH LPF FOR DATA SIGNAL)
INTEGRATE WAVEFORM OF
ABSOLUTE VALUE OF SERVO SIGNAL
(WITH LPF FOR SERVO SIGNAL)

FIG. 7

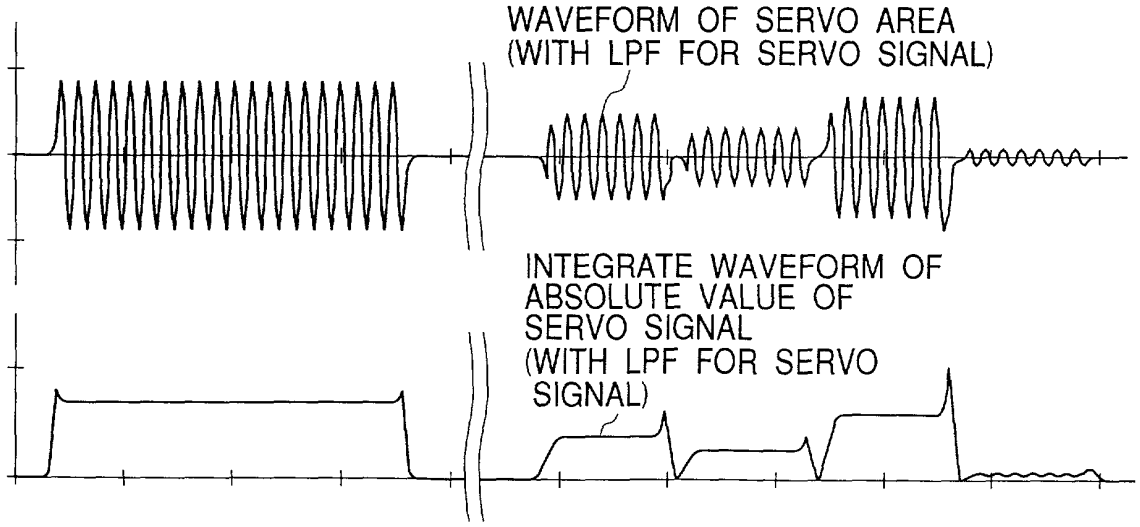

WAVEFORM OF SERVO AREA
(WITH LPF FOR SERVO SIGNAL)
INTEGRATE WAVEFORM OF
ABSOLUTE VALUE OF
SERVO SIGNAL
(WITH LPF FOR SERVO
SIGNAL)

FIG. 8

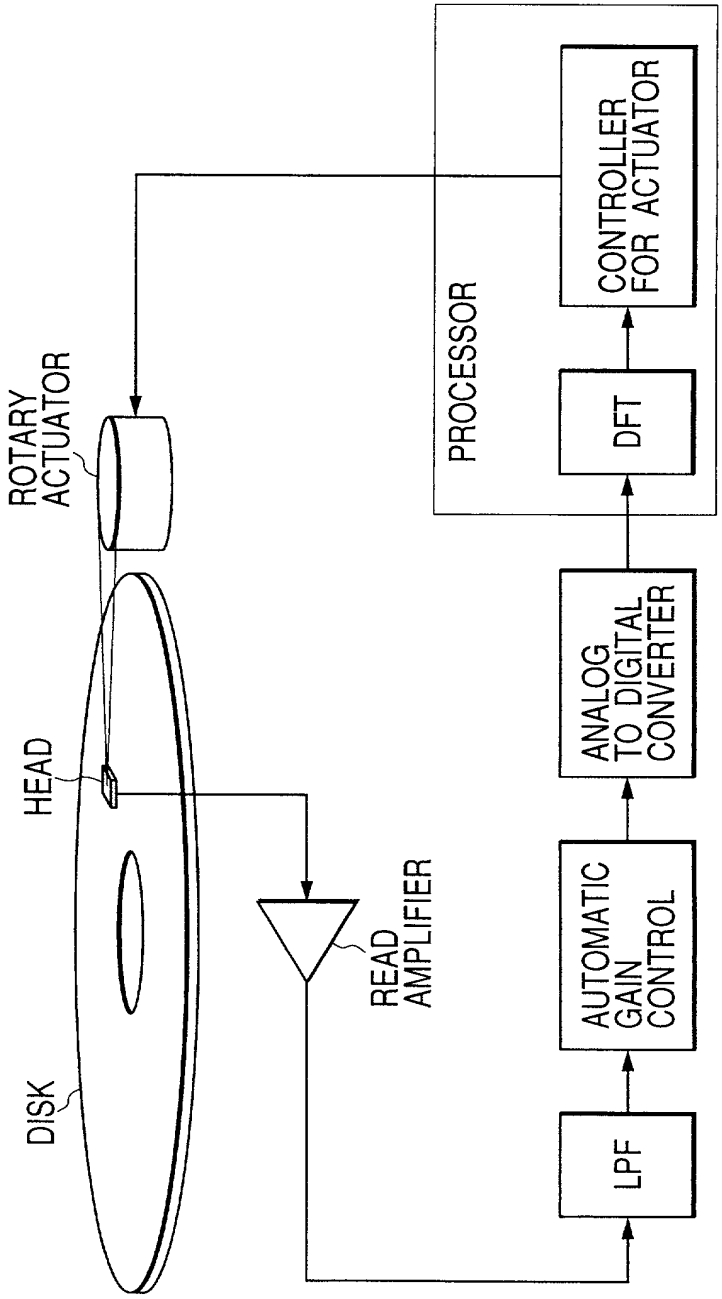

ROTARY ACTUATOR
HEAD
DISK
READ AMPLIFIER
LPF
AUTOMATIC GAIN CONTROL
ANALOG TO DIGITAL CONVERTER
DFT
CONTROLLER FOR ACTUATOR
PROCESSOR

FIG. 9

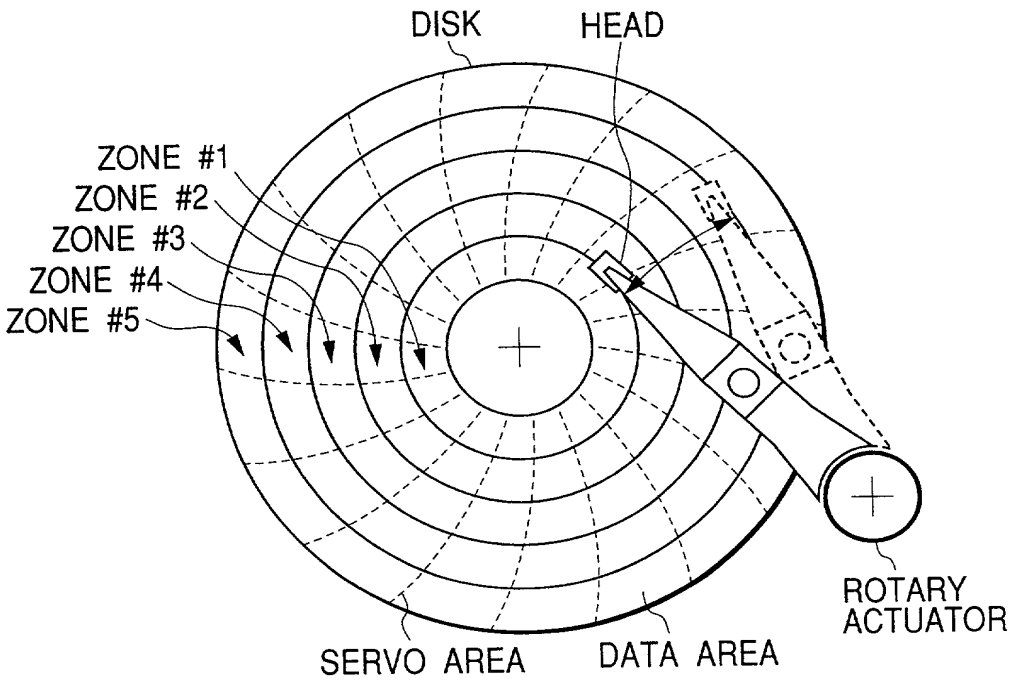

DISK
HEAD
ZONE #1
ZONE #2
ZONE #3
ZONE #4
ZONE #5
ROTARY ACTUATOR
SERVO AREA
DATA AREA

FIG. 10

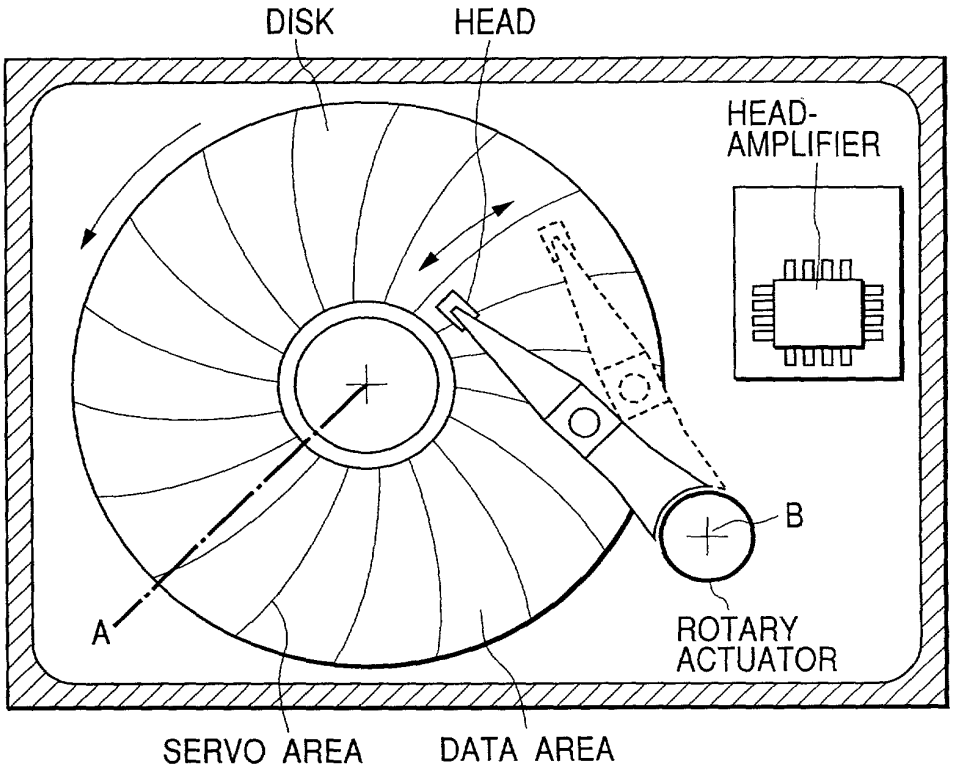

DISK
HEAD
HEAD-
AMPLIFIER
B
A
ROTARY
ACTUATOR
SERVO AREA
DATA AREA

FIG. 11

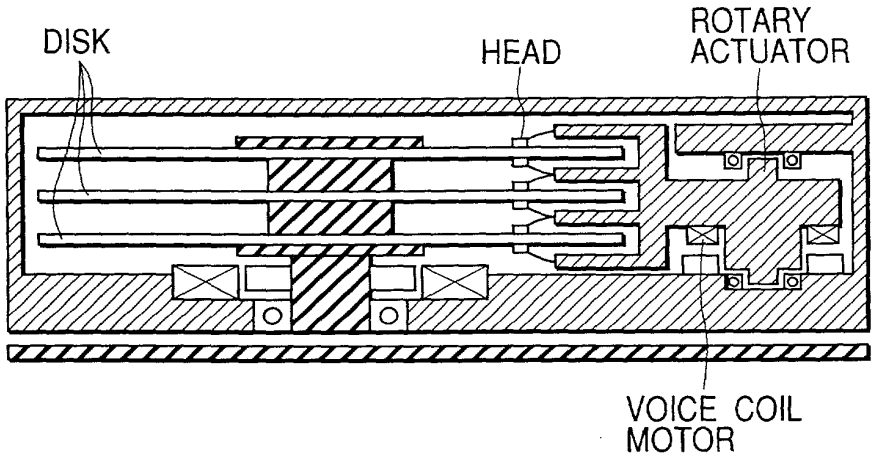

DISK
HEAD
ROTARY
ACTUATOR
VOICE COIL
MOTOR

FIG. 12

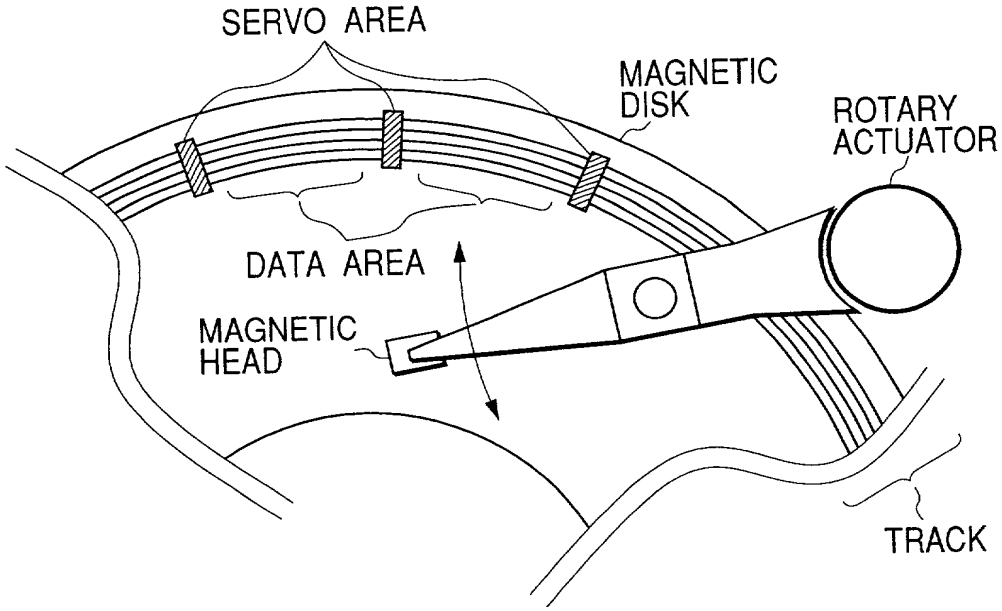

SERVO AREA
MAGNETIC DISK
ROTARY ACTUATOR
DATA AREA
MAGNETIC HEAD
TRACK

FIG. 13

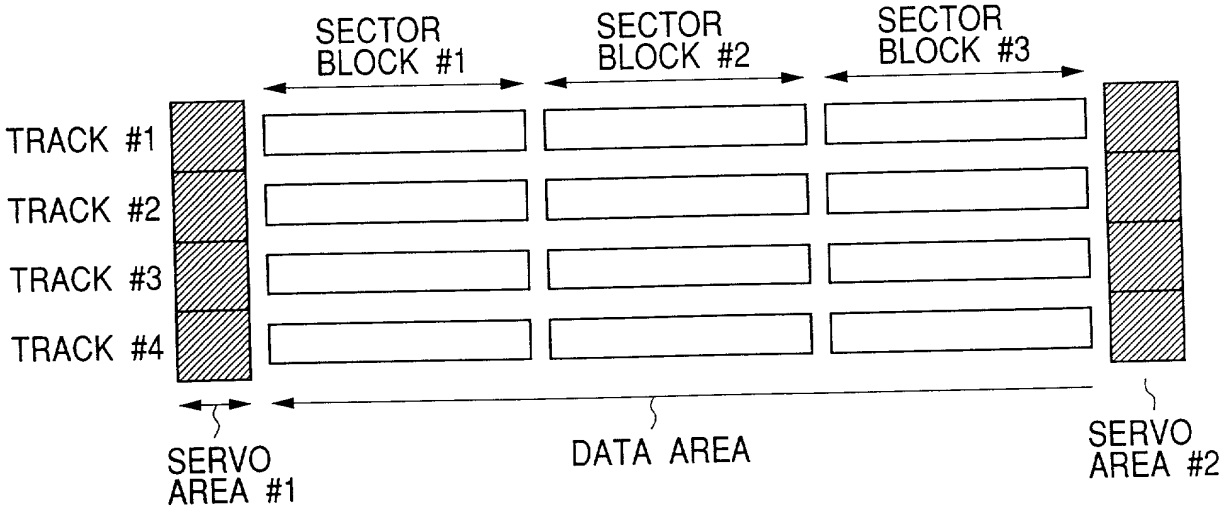

SECTOR BLOCK #1
SECTOR BLOCK #2
SECTOR BLOCK #3
TRACK #1
TRACK #2
TRACK #3
TRACK #4
SERVO AREA #1
DATA AREA
SERVO AREA #2

FIG. 14

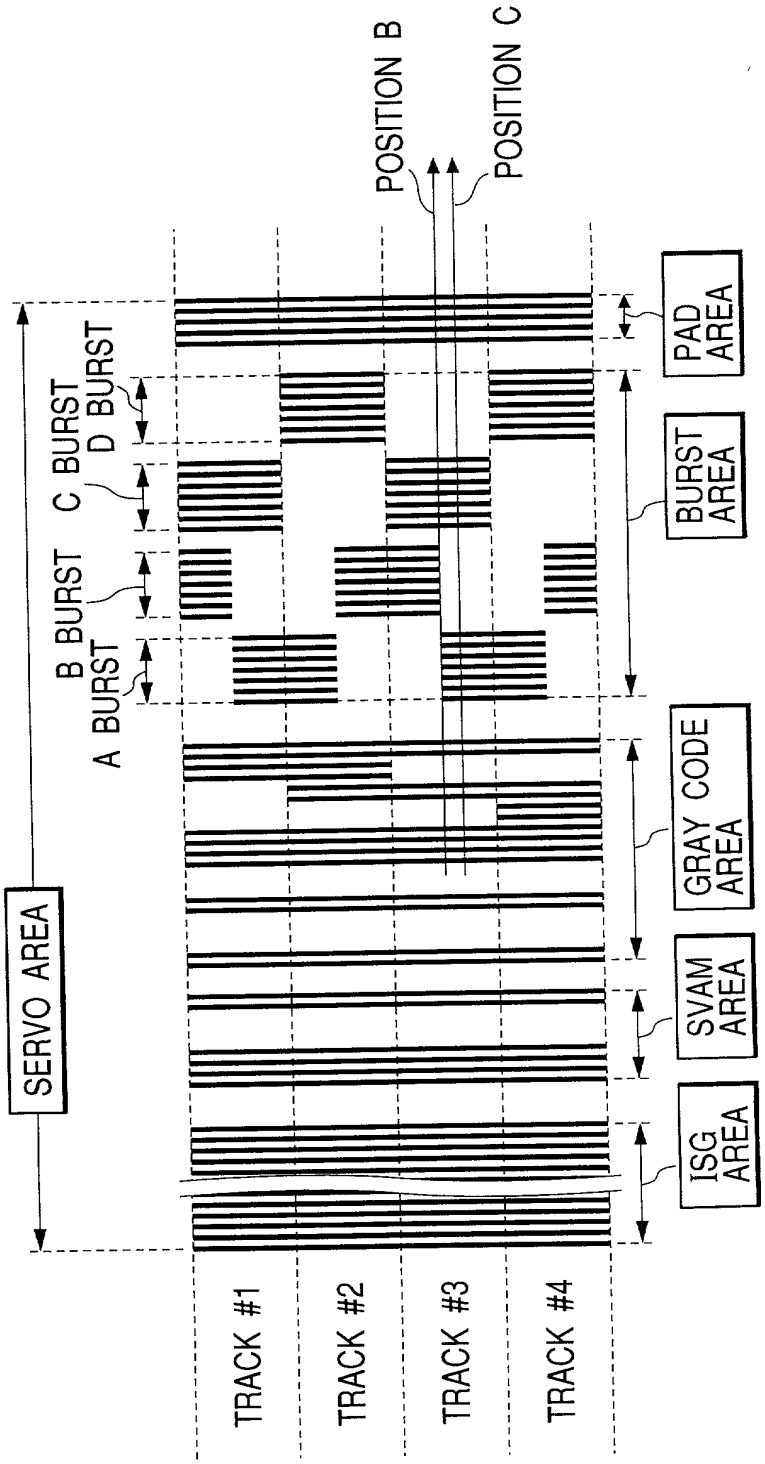
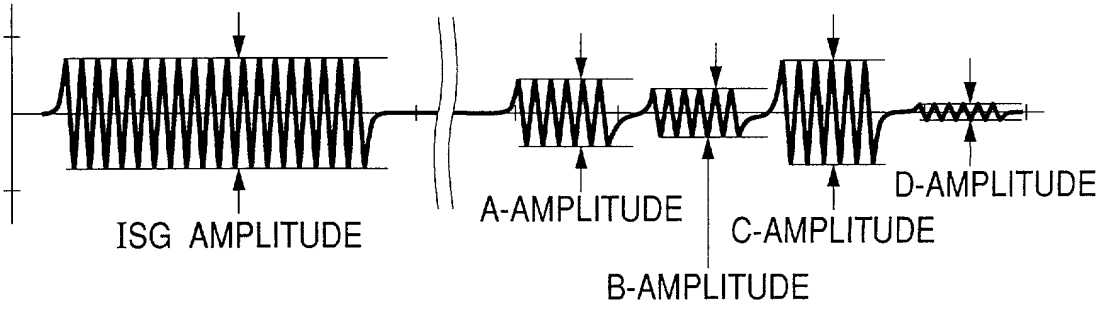

SERVO AREA
A BURST
B BURST
C BURST
D BURST
POSITION B
POSITION C
PAD AREA
BURST AREA
GRAY CODE AREA
SVAM AREA
ISG AREA
TRACK #1
TRACK #2
TRACK #3
TRACK #4

FIG. 15



$$\frac{\text{A-AMPLITUDE} - \text{B-AMPLITUDE}}{\text{ISG AMPLITUDE}} = \text{N POSITION SIGNAL}$$

$$\frac{\text{C-AMPLITUDE} - \text{D-AMPLITUDE}}{\text{ISG AMPLITUDE}} = \text{Q POSITION SIGNAL}$$

FIG. 16

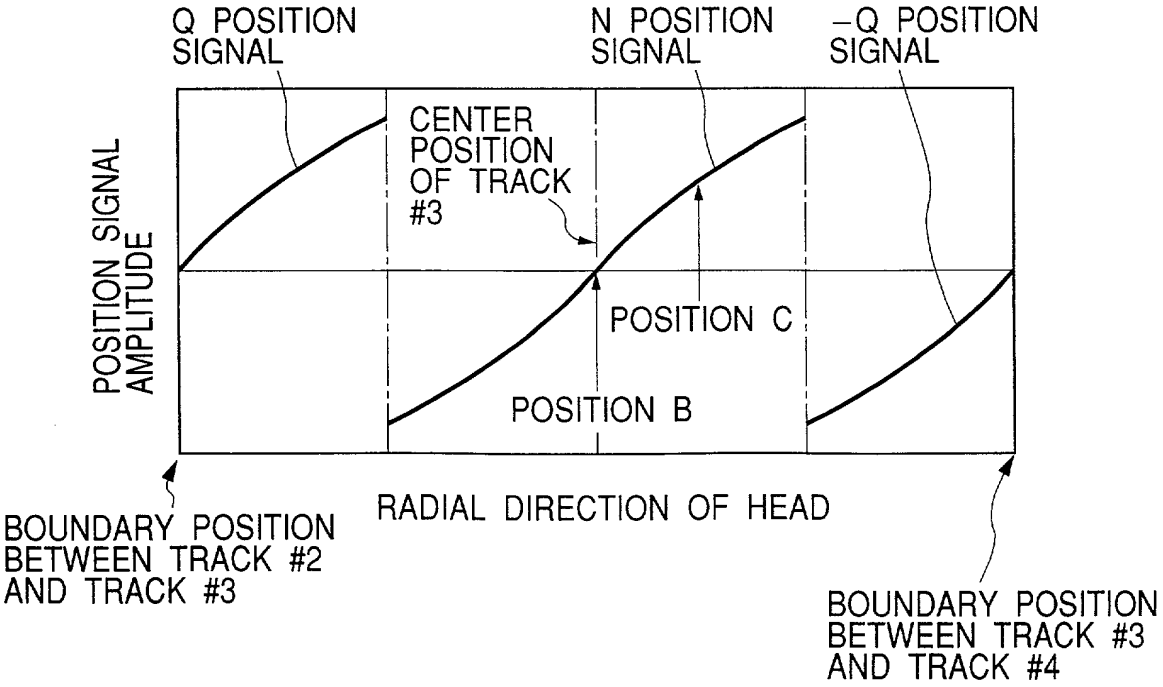


FIG. 17(a)

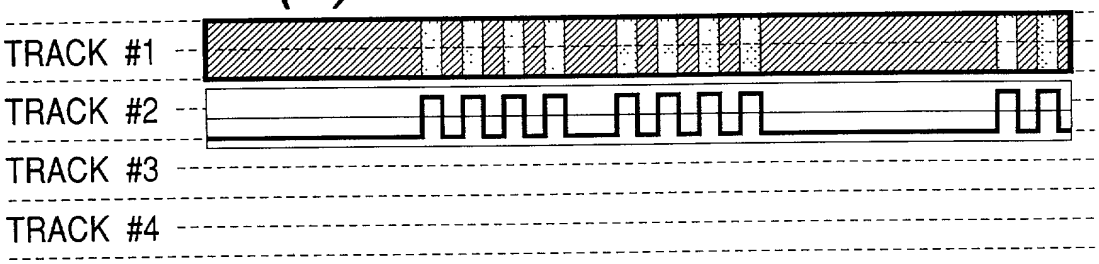


FIG. 17(b)

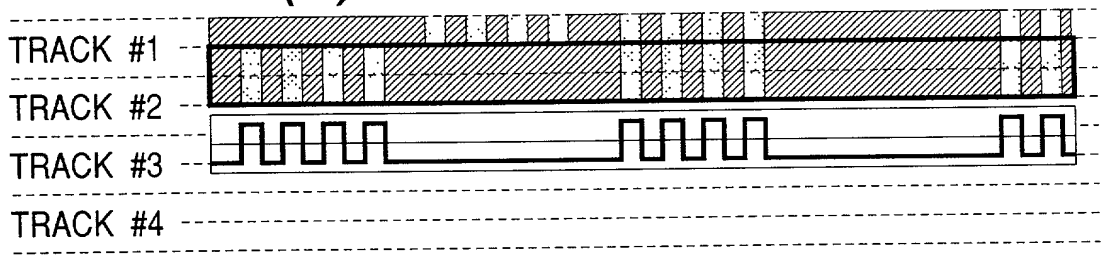


FIG. 17(c)

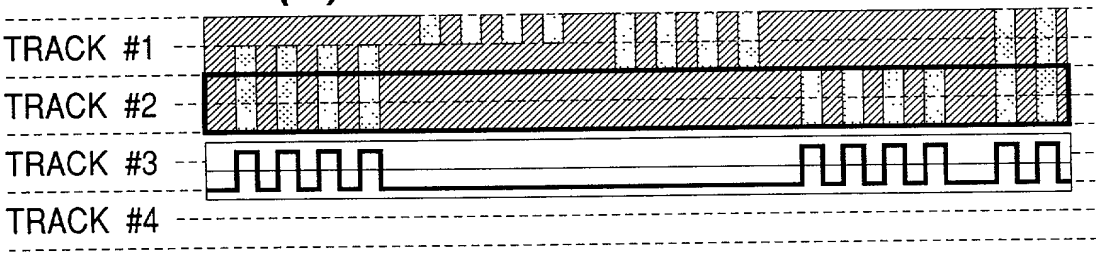


FIG. 17(d)

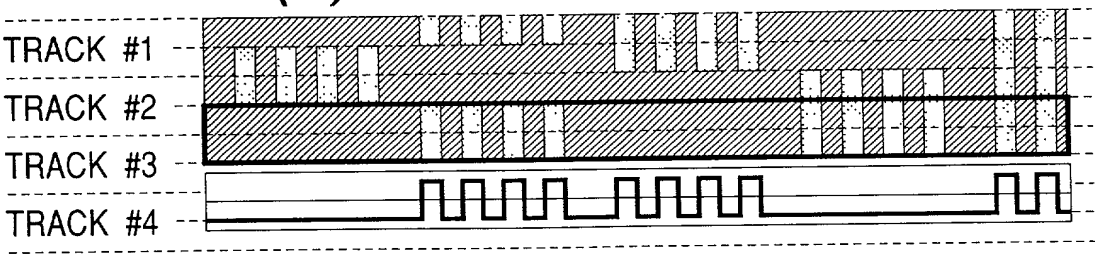


FIG. 17(e)

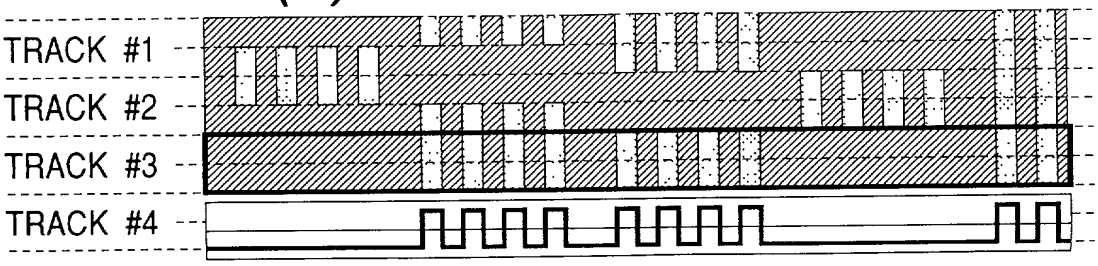


FIG. 18(f)

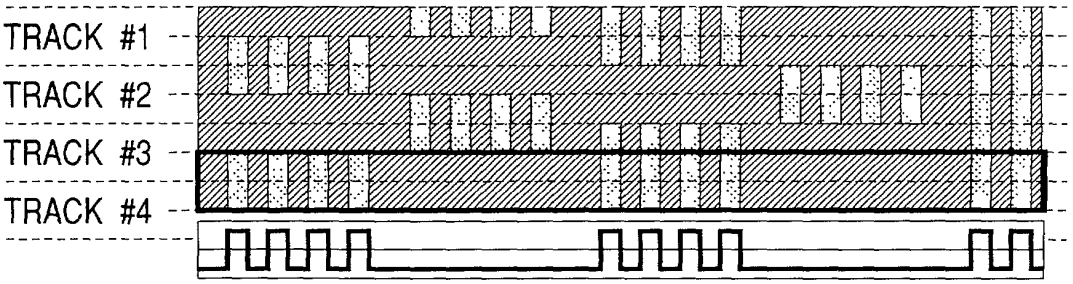


FIG. 18(g)

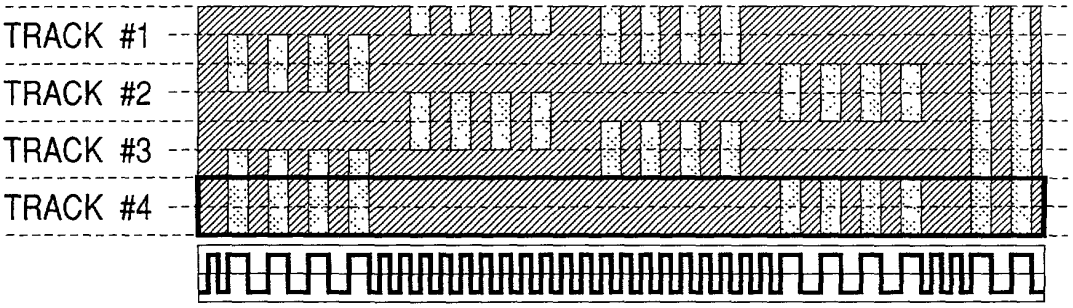


FIG. 18(h)

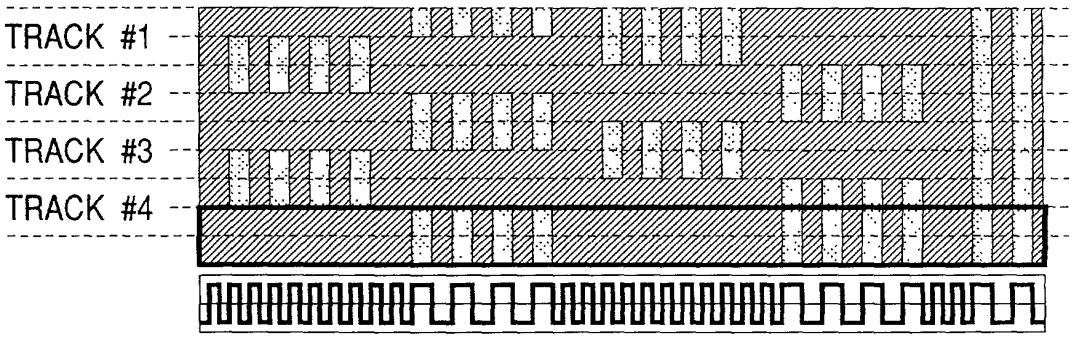


FIG. 18(i)

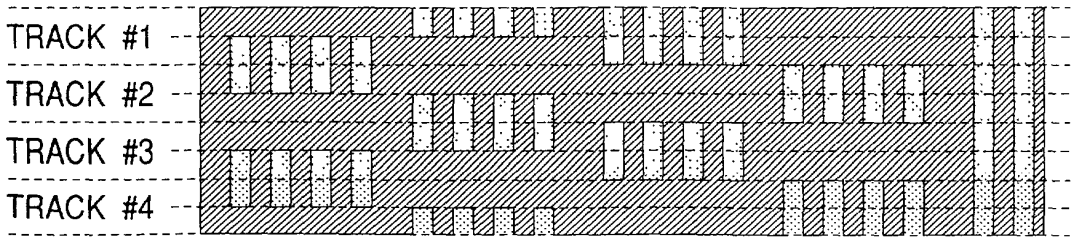


FIG. 19(a)

RECORDED MAGNETIZATION STATE FOR LONGITUDINAL RECORDING

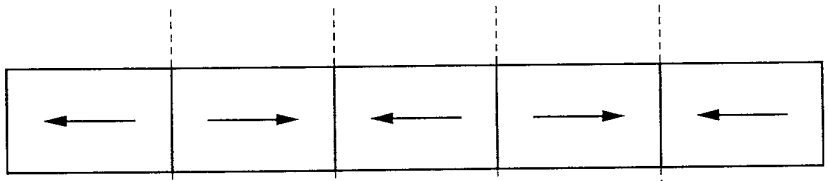


FIG. 19(b)

WAVEFORM OF REPRODUCED SIGNAL FOR LONGITUDINAL RECORDING

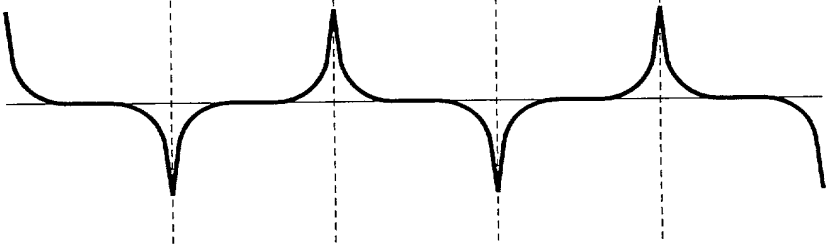


FIG. 19(c)

RECORDED MAGNETIZATION STATE FOR PERPENDICULAR RECORDING

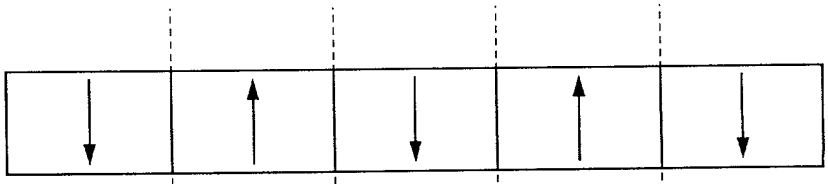


FIG. 19(d)

WAVEFORM OF REPRODUCED SIGNAL FOR PERPENDICULAR RECORDING

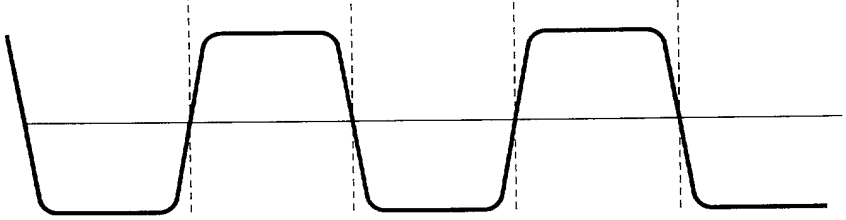


FIG. 20(a)

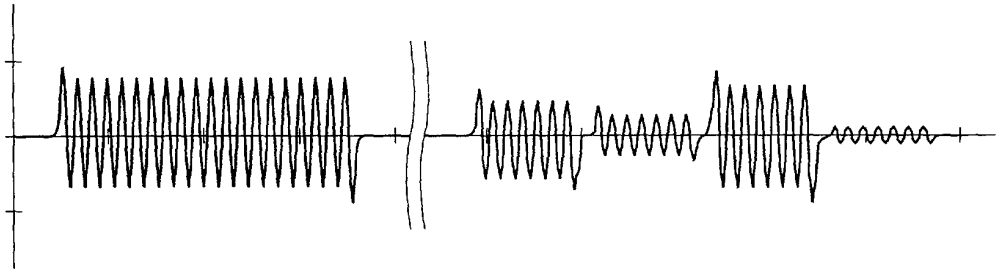


FIG. 20(b)

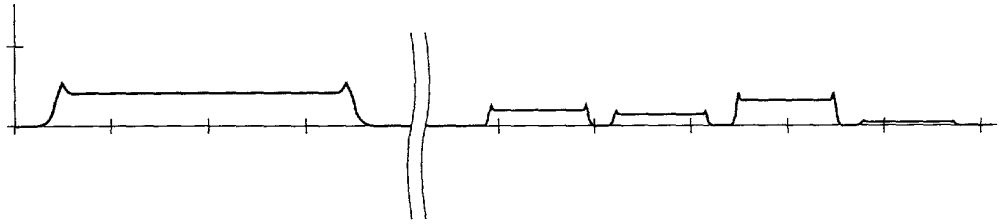


FIG. 21(a)

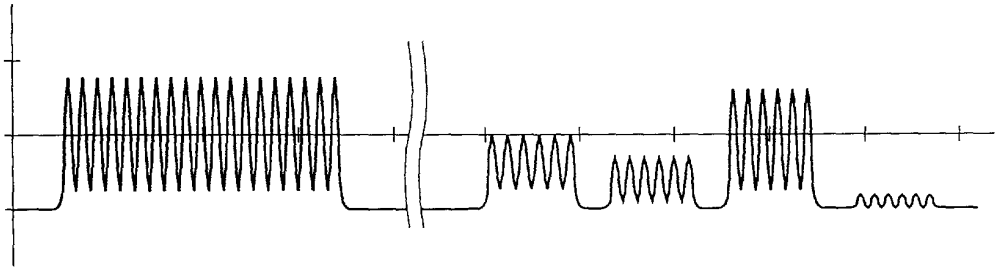


FIG. 21(b)

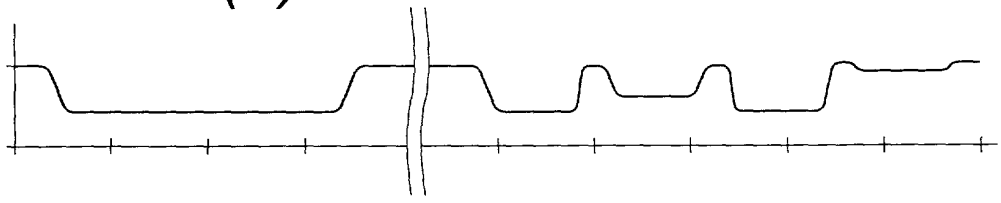


FIG. 22

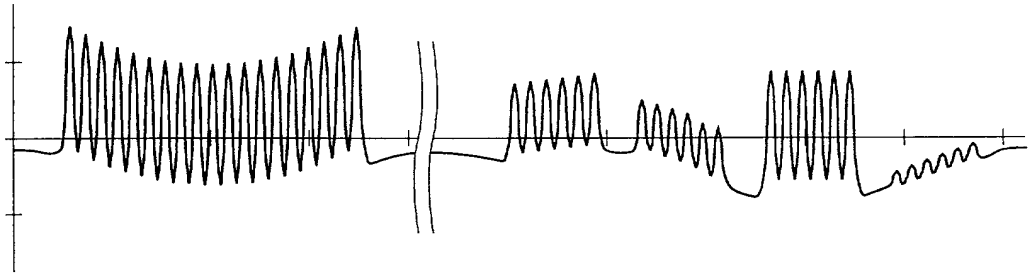
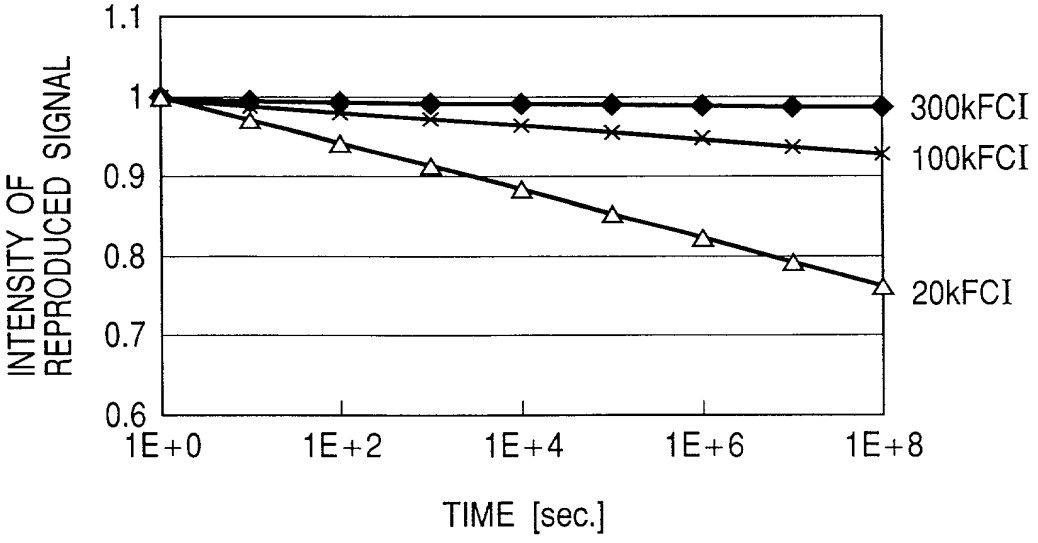


FIG. 23


1.1
1
0.9
0.8
0.7
0.6
INTENSITY OF REPRODUCED SIGNAL
1E+0
1E+2
1E+4
1E+6
1E+8
TIME [sec.]
300kFCI
100kFCI
20kFCI